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The Many Faces of Integration

PETER LINDSAY
SHIRLEY MCNAUGHTON

*In the last two decades, probably no other issue has come so strongly to the fore as society's obligation to its members who have handicaps. The problem has emerged in education, in the community and in the workplace. In different contexts, the title on the banner has varied - "integration", "mainstreaming", the "independent living movement", "equal employment opportunity" and the "rights of the disabled" to equal participation but the basic issue has been the same: How do we as a society accommodate to the special needs of all of our citizens? Probably no other disability offers such a great potential impediment to full participation in society as the lack of functional speech. This then we felt was an issue that is important to discuss in **Communicating Together**.*

Background

There is probably no place in which the issue of integration has been more vigorously debated than in education. In the last twenty years, governments and school systems in North America and Europe have increasingly recognized that the school has a responsibility for educating all of its children regardless of handicap or disability. In fact many jurisdictions now have laws in place that say as much. The debate then is no longer whether children with disabilities have a right to education. It is now how best to fulfill that right.

Initially, the education system's response to the need to educate all

children was to develop departments or sub-departments of "Special Education" in the Faculties of Education, where teachers were given the specialized training they supposedly needed to work with children who had exceptional learning needs. These teachers in turn worked in special-education schools or in classes within schools where the students with exceptional learning needs were taught. Other professionals - speech pathologists, occupational therapists, psychologists - were enlisted in the cause as needed. Regular classroom teachers were usually quite happy with the situation as they were led to believe that they did not have the skills or techniques required to teach these children. Their classes were big enough anyhow not to need the extra demands created by children with significant learning or behavioural problems. The education system at least seemed to have found a way to respond to the societal requirement that it deal with all of the exceptional learners in its community.

During the eighties and increasingly in the nineties, challenges to this situation are coming from several fronts. One is from the educators themselves. Those still in special classrooms have begun to question the effectiveness of the programs they are using for their students. Are they really more effective than the programs being used in the regular classroom? Indeed are they effective at all? Teachers in regular classrooms, on the other hand, are now questioning their own abilities from direct experience. Can they meet the needs of children with disabilities as well as respond to the learning requirements of the non disabled students in their classes? What is the most

productive way to balance the social learning needs of children with their academic needs?

Challenges are also coming from the parents of children with disabilities. Some are asking for better special schools and classes for their children to meet their special learning needs. Others are asking for the opposite. They want their children who have disabilities to go to the same schools and classrooms as their brothers and sisters. They question how children with disabilities will learn the social skills needed to make friends with other children their age if they never have the opportunity to interact with non-disabled children.

Finally social activists are also increasingly influencing educational thinking. They are fighting to close institutions of all types, and proclaim the right of individuals with disabilities to live in the community with full access to all of its recreational, cultural vocational and educational facilities. They also proclaim the right of individuals with disabilities to make decisions about their own care, and to be educated with their non-disabled peers. For them, special education classes for exceptional learners are just another form of totally unjustified segregation.

Even the United Nations now has a position on integration in its adoption of the convention on the Rights of the Child in 1989. Article 23 of that convention proclaims that the State should ensure that the "mentally or physically disabled child should enjoy a full and decent life, and opportunities in a manner conducive to the child achieving *the fullest possible social integration* (emphasis added) and individual development including his or her cultural and spiritual development."

What is an adequate response to all of these challenges? What is the most appropriate way to decide the best educational placement or living situation?

Perspectives on integration

Several approaches have been offered for considering integration and deciding upon a course of action. One is the *sociological* perspective. According to this view, the fundamental problem is social attitudes toward persons with disabilities. If these attitudes are not positive, then all else is doomed to failure.

An interesting twist on this perspective is the possibility that integration may be proposed as the most appropriate way to achieve some level of acceptance of disabilities in our society. According to this argument, it is already too late to change the attitudes of adults. If society's attitudes are to be changed, it must be done while persons are still young and malleable. This in turn might suggest that we need youngsters with disabilities in our schools but not because it is necessarily the best educational setting for them! We need them because it is the best way to give non-disabled children direct and consistent opportunities to interact with peers with disabilities under conditions where it is possible to develop positive attitudes. This of course assumes that the environment will be managed in such a way that the experience will be positive for all concerned. Care must be taken to ensure that children's attitudes toward their peers with disabilities do not become more negative as a result of the interactions occurring at school. In his article on mainstreaming in this issue, Paul Lingen stresses the importance of interdisciplinary cooperation and communication if mainstreaming is to work effectively for the child.

A second approach is one derived from a *religious, ethical or moral*

perspective. According to this approach, the integration of all individuals into society is based on moral or religious principles. We do not have a choice: Segregation in any form is simply morally wrong.

A third line of argument might be termed the *pragmatic* perspective. Here the question is what works best. That is, what is the most effective approach to education, to living arrangements, to work and so forth. Moreover, pragmatics can involve more than simply the impact on the individual with disabilities. It should also take account of the rest of the system and the cost to the other students and the community at large. Finally, it must accommodate different types of data related to what works best, ranging from informal teacher reports to full scale empirical research studies.

The pragmatic approach cannot deal of course with the question of goals. What "works best" will depend on one's perceived objectives. In the educational milieu, for example, integration may indeed be the most appropriate approach for promoting positive social skills and peer modelling. However, small group segregated classes or one-on-one teaching may be better for developing certain academic skills. Pragmatics cannot solve the problem of what the goals are for the individual and what is valued most.

Finally, there is the *research* perspective. This perspective argues that a thorough review of the research should indicate the best approach for the child. While it is certainly important to know what the research results suggest, this approach suffers from the same shortcomings as the pragmatic approach. The goals have to be specified before the research can even begin to produce any valid answers. There has been a vast amount of research done already but the results are equivocal.

A recent "meta analyses" of the

research literature summarized the results of over 860 studies of integration in which more than 27 thousand regular and special class students were involved. The conclusions were as we might expect: The answer as to what was the most effective educational approach varied depending on what is meant by integration, what outcomes were of most interest (e.g. social, academic or self esteem), the types of impairment involved (e.g. cognitive, emotional, communication, or mobility), the kinds of extra support offered (e.g. systematic orientation and training of the classroom teacher, extensive preparation of the class before the arrival of a student with disabilities, development of a "circle of friends", availability of various types of consultation), and the kinds of outcome measures used (e.g. standardized tests, curriculum based tests, personality measures). The conclusion from all of this research activity seems to be that there are many factors involved and there is no one answer for all children with disabilities. More qualitative and case studies are needed to give us more information regarding individual needs - but they will never tell us what *should* be done in the ethical sense.

Perhaps help will come from studies related to integration in the living and work environments.

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Schalock and his colleagues, for example, are currently assessing differences on a quality of life measure they have developed for cognitively impaired adults. They have assessed quality of life as a function of the degree of normalization of the impaired adult's living and work situation. Using the quality of life scale they had developed, these investigators found that the individuals who lived in smaller group home settings or their own apartments seemed to enjoy a higher average quality of life than those living in larger more institutionalized settings. Within work placements, they found the greater the independence on the job, the higher the average quality of life. Note that Dennis Patchell's living situation as described in this issue's **Living** section, seems to be a compromise between the relatively high degree of independence afforded by apartment living and the increased amount of time Dennis would have to spend doing household chores if he moved to an apartment. Given this choice, Dennis opted for the slightly more "institutionalized" living arrangement of Participation House.

Keeping a Balance

In all of these situations the solution seems to be balance. The lure of increased independence must be balanced against the possibility of increased loneliness and perhaps increased time involved in self maintenance. In the context of educational integration, it is important to balance the potential for increased opportunities for socializing with one's peers against the possibility of limited academic achievement without substantial one-on-one help. We would echo Paul Lingen's position regarding educational integration, in this issue's **Perspectives**, and express our support for "whatever placement (living/working arrangement) is best

able to provide the support services ... where the learner's needs can be met to the greatest extent possible and where there are the least number of barriers to the child's growth".

Reference

Carlburg, C. & Kavela, K. (1980). The efficacy of special versus regular class placement for exceptional children. *J. of Special Education*, 14, 195-309.

Next issue

In the March issue we plan to feature sexuality as the theme. This seems to be an area that has not received much attention in AAC. We hope that a focus upon this topic will be useful to all members of the

AAC community - the AAC users, their parents and their service providers.

Also, Jeff Higginbotham and his co-author, Anne Drazek, have promised another installment of their excellent series on speech output systems for our March issue. Their next article will focus on digitized output systems.

In the meantime, please share this copy of *Communicating Together* with people you feel may be interested in integration issues. Write us about your ideas for future articles or just to register your darts or laurels.

See you in March,
Peter and Shirley

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PARAPHRASE

CATHY FAIRLEY

The **Paraphrase** is written for those who are moving into traditional orthography. It offers an independent reading opportunity for the growing reader. Beginning with this issue, the article paraphrased will be from the current issue rather than from past issues as been the previous practice. The **Paraphrase** is written by Cathy Fairley, former consultant at the Easter Seal Communication Institute.

Dennis is 43 years old. He has cerebral palsy.

Dennis is a very busy person. He works at the local hospital. He is a volunteer there three times a week. The hospital is very close to Participation House where Dennis lives. He can get to the hospital himself except when his wheelchair breaks down.

Dennis is in the Kiwanis Club. He helps them raise money. He is also a Rover. (Rovers are a Boy Scout group for adults.)

Dennis moved to Participation House in 1973. A few years ago, he had a chance to move to an apartment. Dennis did not move. He is happy with his decision to stay at Participation House. In an apartment, he would have to do more household chores. He would not have time to do all the things he does now.

Dennis Pachel and Kari Harrington both live in Participation House in Markham, Ontario. This story is based on Kari's interview of Dennis. The full interview appears in the *Living* column in this issue.



SHIRLEY MCNAUGHTON

As we began to plan our "Integration issue" and to consider the best choice for the feature article, the 1991 recipient of ISAAC's (International Society for Augmentative and Alternative Communication) Shirley McNaughton Communication Enhancement Award immediately leapt to mind. The event which has been given special recognition by this award in 1991 is the Fourth Annual Assistive Device Conference for Students, Parents and Educators, held in Lancaster, Pennsylvania from June 19-21, 1991. Not only did the conference serve as an outstanding example of exemplary communication but we feel it demonstrates, as well, the best in integration.

Picture the scene! We're looking down from a balcony within an atrium containing over 500 persons busily chatting and enjoying lunch. This is our first view of the Fourth Annual Assistive Device Conference for Students, Parents and Educators sponsored by the Pennsylvania Assistive Device Center (ADC). From the upper level of the Palm Court Atrium of the Willow Valley Family Resort and Conference Center, Lancaster, Pennsylvania, we can see all of the participants attending the conference. "Impressive number of people to be present at an augmentative and alternative communication (AAC) conference", you might comment, "But what's so special?"

The conference participants were seated at large round tables, each accommodating eight persons, and it was only after we began identifying individuals at the various tables that we realized what was most unusual indeed about this gathering. At every table there was at least one, and

often two, children or young adults, each in a wheelchair and equipped with a voice output device. The number totalled over one hundred AAC users! Twenty percent of those present at the conference were actually using AAC devices. Now that's impressive!

For their role in facilitating exemplary communication at the Fourth Annual Assistive Device Conference for Students, Parents and Educators, June, 1991, and in recognition of the excellent model created and maintained at each year's conference, the International Society for Augmentative and Alternative Communication (ISAAC) presented the Shirley McNaughton Exemplary Communication Award to Colleen Haney and her colleagues at the Pennsylvania Assistive Device Center.

The AAC students and their families had arrived the day before the professionals and other supporting persons and they were comfortably settled into a carefully planned stream of activities. The conference was a well crafted mix of formal presentations (many of which were given by AAC users, their parents and their facilitators), family recreation, fun events for children and activities in which everyone could interact. For any AAC user who was integrated at school and who was struggling to balance the social advantage of having many speaking

peers with whom to interact, with the feeling of isolation resulting from being the only AAC user in the school, this conference must have felt like heaven on earth!

Pros and cons of integration

The benefits of integration for AAC users are well known, particularly with regard to the language learning opportunities available when one is surrounded by peers who talk. Less frequently addressed, however, is the feeling of isolation which comes from the lack of day-to-day contact with friends who share the unique life experiences of being an AAC user; the difficulty of learning an AAC communication system with no role models and no learning companions; the feeling of being different and somehow viewed as less capable than all one's peers.

What an exciting response to this paradox - an annual gathering of AAC users, parents, siblings, educators, clinicians, university graduate students and administrators, arranged by AAC specialists working within the educational community. From the moment we arrived, we felt the joy that comes from associating with those who have understanding because they share similar challenges.

The Annual Conference

The stated purpose of this annual conference since it was first held four years ago has been to bring together people interested in sharing their stories, successes and strategies using augmentative communication devices and to provide an opportunity for graduate students to meet "live" clients and their families. Eight families attended the first get-together at the Sheraton Hotel in Danville, Pennsylvania, in 1987. It

set the tone for future conferences by including a Pizza Party, a caravan trip to Bloomsburg University to spend the day with graduate students and an ice cream social. In 1988, 30 families and 100 professionals met together. By 1990 there were 50 families and 150 professionals at the gathering and the conference activities were expanded due to interagency collaboration with Arts in Special Education, Office of Vocational Rehabilitation, Parent Education Network and Penn State University. In 1991, the numbers had grown to 543 participants: 103 families totalling 360 persons; 112 professionals; 10 Pennsylvania Assistive Device Center staff; and 61 supportive persons including Bloomsburg University students, artists, volunteers, etc.

What do people do at the Assistive Device Conference for Students, Parents and Educators? Everything! There were presentations by individuals and teams of persons, panel discussions, poster sessions, photo displays, swimming parties, music activities, clay art, marble art, face painting, bandanna/banner-making, storytelling activities, computer activities, games, a moon walk, parent-networking sessions and enough free time for just plain visiting with each other. There were infant and childcare services and teen gathering sessions so the entire family could attend the conference, but each member could attend the sessions that interested him or her.

Of course the most exciting part of the conference was that wherever we went, there we found assistive device users. They gave presentations; they participated in panels; they became mentors for each other; they went to the social events and they participated with their siblings and peers in the fun activities. It was during meal times that we had our best times with AAC users and their families. There we could just chat about their experiences and their reactions to the

conference events. We listened to the successes and the problems; we saw "people helping people" in action. Children and young adults who used assistive devices could be a part of the interaction, sometimes listening to the conversation of the adults, sometimes giving their opinions, always knowing that this conference was about and for them. This was an experience to savour!

Learning from AAC users

How can one select from 103 AAC users, to demonstrate the wealth of information that was shared and the role modeling that was taking place? Perhaps excerpts taken from three of the presentation handouts will provide the best illustrations:

• Bob Walsh, 20 years old

After intensive efforts by his mother, Catherine Walsh, Bob was mainstreamed into a community school when he was 15 years of age. Here is how he remembers feeling :

I was real scared, on my first day going to the West Scranton Intermediate School. Some people told me and my parents I wouldn't be able to handle the work, and the kids would make fun of me.

I will show them more and prove them wrong. I will reach the rest of them soon.

It wasn't easy. I worked very hard. Sometimes I got discouraged but a good report card made me more determined to go on.

• Keri McKenna, 19 years old

I have many hopes and dreams inside of me. One goal for my life is to be able to help other people with the development of their Communication Boards and LightTalkers. I would want to do this to help them to successfully communicate with others. Also, I would like to

compose storybooks for children to read and enjoy. It would be great if the stories could be adapted to game form too. Hopefully, my stories and games could be enjoyed in both homes and schools.

Right now, my dream was to be able to be here at this conference and to share my knowledge and thoughts with all of you. Thank you, Mom, for helping my dream to come true.....

Today, a preschool aged child can really participate with the family. He can talk with his family. He can tell his family what he needs and wants. This approach is called The Family Model. The whole family helps to decide what will be included on their family member's communication device.

A communication device will teach the young child to make decisions and to build independence. I feel that this is the most important door that can be opened. The most important time to open that door is when the person is young. An assistive communication device will give the child a way to communicate for life.

• John Pfab, 22 years old

My story for this year is much more positive than my story from last year. I still have people telling me what to do with my life. But, they have been teachers and advisors for me. For the first time in my life I have been making decisions for myself, as well as, by myself and I usually have the deciding vote on matters. The only exception to this involved my choice to go to the bank alone. Last May, while going to the bank, my joystick ball on my wheelchair fell off. When that

happened, I lost control of my chair and rolled down a driveway into the gutter of the street. A priest came up to me and asked if I was all right. I was trying to ask him to put my head pointer on, but he didn't understand me. He had someone from the United Cerebral Palsy Center to come to get me. When they got there he yelled at them: "Why do you let your people escape? Did you even know he was out here?" We tried to assure him that it was OK for me to be out on my own. But he didn't hear that. I learned that some people with good intentions do not have any idea of how to interact with a person who has a disability if that person happens to be an adult.

Planning for the future

While the regular presentations were going on, another exciting level of interaction was occurring. Throughout the conference, those who are responsible for the involvement of consumers at the upcoming 1992 Biennial Conference of the International Society for Augmentative and Alternative Communication (ISAAC) in Philadelphia, Pennsylvania, August 7-11, 1992, were meeting to plan the arrangements that would be needed. They had learned a great deal from their first-hand experience in Lancaster about the many details that make a conference successful for consumers. It was great to see this immediate "spinoff" learning.

In her closing remarks, Colleen Haney, Coordinator, Pennsylvania Assistive Device Center, shared a childhood dream to emphasize the theme for the 1991 conference. In her dream she had been able to swing on the stars and had been promised by God that she could have the moon! For her, the Assistive Device Conferences for Students, Parents and Educators were the adult version of her dream, come-true! Hence, "ADC

Shooting for the Stars" was chosen as the 1991 conference name. Colleen challenged everyone in the audience to see how far they could reach throughout the coming year. In 1992, the conference will be held on August 2,3,4 at the Hilton and Towers, Harrisburg.

We are indeed lucky that there are professionals like those at the Pennsylvania ADC who keep aiming high. They ensure that AAC

users are integrated in the best sense of the word. They are integrated with speaking youngsters in their daily school settings and they are an integral part of all the annual conference activities. In addition, they have the opportunity to learn about and interact with other AAC users. At the 1991 conference, it was with all 102 of them! There is a long way yet to travel on the path of integration. We thank Colleen and her colleagues for showing us one part of the way!

AAC USERS

If you wish further information regarding the ISAAC 1992 conference, contact Mary Ann Glicksman, co-chair, ISAAC Consumer Affairs Committee, 1303 9th Street, Santa Monica, CA 90401, USA; Phone 213-450-8827 or 800-222-7372 (toll free within Pennsylvania)

For information about the **Fifth Annual Assistive Device Conference for Students, Parents and Educators**, which will be open to persons from outside Pennsylvania, contact Colleen Haney, Pennsylvania Assistive Device Center, 150 South Progress Ave., Harrisburg, PA 17109, USA; phone 717-657-5840 or 800 222 7372 (toll free within Pennsylvania).



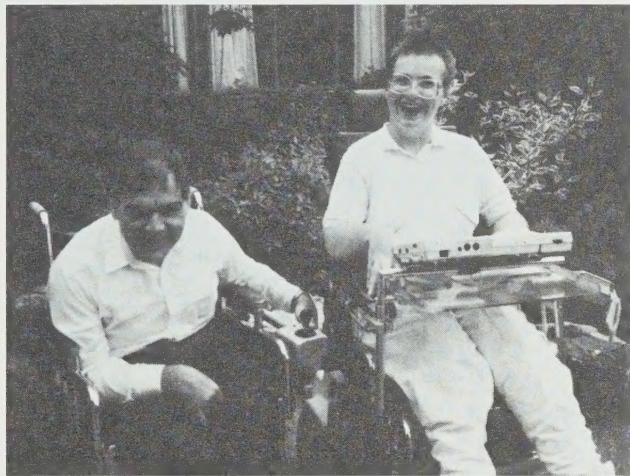
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Dennis Patchell & Participation House

KARI & RUTH HARRINGTON



*Kari Harrington has been writing for **Communicating Together** since 1984. Her regular section has been enjoyed by readers since September, 1987. Earlier this year, Kari moved into Participation House in Markham, Ontario. In this issue she shares the experiences of another resident who has had many years of living in a community-based residence.*

When we first approached Dennis Patchell and asked if we might interview him for *Communicating Together*, his first question was, "Exactly what will this entail for me, time-wise?"

Dennis is a very able, busy person. We knew this because we had often encountered him while he was working at the Markham Stouffville Hospital or talking with people at the local Mall. Every autumn, we found him manning a booth at the Markham Fair. Sometimes he would be travelling on the same mobility bus. He would be heading to, or coming back from, a day in the city. It was because we knew how busy he kept himself that

we wanted to hear his story and share it with you.

Dennis was born forty-three years ago with cerebral palsy and all four of his limbs are affected. Over the years, however, his hand function has improved, and he is now able to propel his own manual wheelchair as well as drive an electric one. Until he was five years old, Dennis was unable to speak. While he was a child, he had extensive speech therapy. Now Dennis can speak very well and communication has not been a problem for him since he was a young boy living in Toronto.

When Dennis was about fourteen years old, he moved with his parents and younger brother to Peterborough, a small city about 90 miles north-east of Toronto, Ontario. The school system there was not providing the special educational services which they do now, but he did have a teacher come to his home twice a week. He thought it would have been fun to go to school with the other kids, but that just wasn't possible.

Before moving to Peterborough, Dennis' parents had been members of the Cerebral Palsy Parent Council of Ontario, the organization which was responsible for developing the whole idea of Participation Houses (P.H.s), small residences for less than 40 persons. They continued to support the work of the Council from Peterborough and watched from a distance the construction of the first P.H. with great interest. Dennis has a marvellous memory and can remember the exact date of many of the important events in his life. He remembers that it was on April 20, 1973, about one year after P.H. was opened, that he moved in.

We asked Dennis if he could remember how he felt way back then - eighteen years ago. He said, "For the first three months I was on pins and needles all the time. I couldn't settle down. There was a three month probation period, for them and for me, to decide if P.H. would be a good place for me. I didn't know if they would accept me permanently, or quite what was expected of me. I was satisfied, but would they be?"

It had been Dennis' own choice to go and live at Participation House. "I knew the time was going to come when my parents couldn't handle me any more" said Dennis, "Participation House sounded like a good place, and I would be well cared for. I thought if I didn't make the move soon, I could end up in a nursing home, and I didn't want that." Dennis has been happy at Participation House and things have worked out well for him.

He knows it was hard for his mother when he first moved away from "home base". They phoned back and forth all the time. In fact, he says, they still do, and he gets home for Christmas every year. Between times everyone keeps busy getting on with their own lives. This leads us back to

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Dennis' busy life.

Dennis has been associated with the Kiwanis Club of Unionville for ten years now and attends their meetings regularly. Much of his work relates to the club: he sells all the tickets for draws at their various events; he sells fire-starting logs at a booth at the annual Markham Fair and other places. He also raises money at Christmas time at the local mall for the Salvation Army.

He has worked to promote public awareness of those with physical disabilities by speaking to students at the local community college and other places. As Dennis says, he gives teachers and students an opportunity to learn from and ask questions of "an authority on the topic of physical disability."

Dennis has his own business card to show that he is a sales representative of "Let's Frame It", a company located downtown in the city of Toronto. This connection was made through his brother, and is the reason for the occasional, day-long trips into the city. Dennis also works at the hospital adjacent to P.H. three afternoons a week. Along with his co-worker and friend Red Carlson, he spends two of those afternoons guiding patients from the Admitting Department to their destinations within the hospital. On the third afternoon, he works on his own in an area of the hospital devoted to our older citizens. One of the reasons that Dennis is such a good volunteer is that he is a good listener. He does what he can to talk with and cheer up these patients in order to make their stay in the hospital a little easier.

Dennis keeps himself busy even when he is not working. Participation House hosts many events, dances and parties which he attends. Different groups visit and perform in the Activity Room and residents are always invited to participate if they wish.

From the time he first moved into P.H., Dennis has also been a member of the Rovers, the adult Boy Scout group which meets there each week. He has shared many stimulating experiences. It was at Rovers that Dennis first met his friend, Red Carlson, a Boy Scout and Rover leader.

Dennis' desk is overflowing with all the trappings of his busy life. One object stands out, his radio scanner. Dennis explained that he has learned all the codes used by the different police forces and ambulance services that work within the range of the scanner. Because of P.H.'s close proximity to the hospital, Dennis is particularly interested in the ambulance channel. Once he is tuned in on his scanner, he knows where ten ambulances are heading. He then waits to hear the sirens as the ambulances get closer.

We were aware that Dennis had had the opportunity to move into an apartment a few years ago and had chosen not to. Knowing how able

and independent he was, we asked him why he didn't want to be more independent in his home, too. First, he said that P.H. was the closest to his work. Taking buses was tiring and it was expensive too. Then he went on to say, "If I moved into an apartment on my own, I'd have to do housework and shop and organize my meals and make sure my laundry gets done. I wouldn't really be able to do as much as I do now. I'd have no time or energy left to do all the other things I want to do. I know I could handle apartment living but I know my limitations too."

We got the definite feeling that Dennis thinks there is much more to life than doing housework. Who would want to argue with that! Living at Participation House provides the right combination of independence and choice for Dennis. What is most important is that it is Dennis' decision and he is well satisfied with it.

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Speech Output

JEFF HIGGINBOTHAM
ANNE DRAZEK



Jeff Higginbotham is a faculty member in the Department of Communicative Disorders and Sciences, at the State University of New York at Buffalo. Jeff also serves as the director of the University's Communication and Assistive Device Laboratory (CADL). Anne Drazek is a graduate student in Jeff's program with a special interest in speech production systems. They present here the first of two articles on speech production.

Introduction

It's safe to say that speech technology has made remarkable progress over the last 10 years in terms of its quality, availability and affordability. It is also true that, for voice output communication aids (VOCAs), more work is still needed to make them more acceptable and effective instruments for communication. The near future promises to be an exciting time for all of us with respect to technological innovations in this area! Our task today, however is to take a critical look at the current state of speech output technologies in augmentative communication to determine how well they currently perform.

Two types of speech output technology are commonly employed

in VOCAs today. *Digitized speech* technologies record, store and playback human speech and other sounds. Although human sounding, this type of communication is restricted to prerecorded sound segments and it takes up a great amount of storage space. *Synthesized speech*, on the other hand, translates typed text or speech sound characters (i.e., phonemes) into recognizable speech, enabling the production of any word, phrase or message. This approach is the basis of text-to-speech systems. This article will deal with synthesized speech. Digitized speech technologies will be reviewed at a later date.

Our evaluation of speech synthesizers is based on a review of the research literature on the intelligibility and acceptability of specific speech synthesizers, as well as preliminary findings from some research being conducted in our laboratory(2). We were able to obtain data for many but not all currently available technologies, and the data presented reflect assessments on both previous as well as current versions of these speech synthesis systems. The tables presented in this article provide information about (a) how well people can identify single words in isolation (single word Intelligibility), as well as (b) how people rate the synthesized voices as a viable substitute for their own or another person's voice (Preference).

The synthesizers in Table 1 below are ranked according to their single word intelligibility scores. We felt that this score was most comparable across studies and represents a conservative but reliable estimate of the speech intelligibility of each synthesizer. Intelligibility estimates based on single words have been used by scientists and engineers for a

number of years. The range estimates reported for some synthesizers are based on the results of different studies and probably reflect the differences in the word lists, instruments, the procedures and the subjects used.

Other important aspects of speech synthesis are not dealt with in this article because we do not have the information available at this time. These are issues such as how well people can understand synthetic speech systems in conversation or noisy environments, as well as the ability of these systems to handle intonation, different dialects and accents, emotional expression, and so forth. Finally, the synthesizers reported on here are employed in many of the augmentative communication technologies used today. These synthesizers are described below.

Synthesizers Reviewed

DecTalk/Multivoice. This system has been available as a stand-alone system for about 10 years, DecTalk technology is now also being used in several augmentative communication systems (e.g., Liberator, Touch Talker, Light Talker, Dynavox, VOIS 160). This high quality speech synthesis system provides a variety of modifiable male, female and child voices.

Echo+. The Echo speech synthesizer was one of the first low cost speech synthesizers available for commercial purposes. A low quality speech synthesizer, the Echo is very popular for educational applications (Apple II and PCs) and was the original synthesizer used for the Touch Talker. It features a modifiable robotic voice (with intonation) and some sound effects capabilities.

Infovox. This system was developed at the Royal Institute of Technology in Sweden. Infovox

is a moderate quality speech synthesizer offering multilingual capabilities including English, Swedish, French, Spanish, German and Italian. This synthesizer is currently used in the ZYGO Polycom communication aid.

Artic Technologies. The Artic synthesis systems are a refinement of Votrax technology and are currently offered in the ZYGO Notebook and in a series of PC-related low vision applications (Symphonix). Intelligibility information is only available for the earlier R65B model which possesses low to moderate quality speech.

both dedicated communication aids (Touch Talker, VOIS 160) and portable computers (e.g., E Z Keys).

Votrax - This is one of the first of the systems to be available commercially. It has a low to moderate quality Robotic voice and was used in several speech synthesis units including the early Phonic Ear VOISystems and ACS SpeechPac. It is currently used for the ZYGO Lightwriter.

Intelligibility Assessments

As can be seen from the tables, speech synthesizers span a wide

roughly paralleled their intelligibility scores. In summary then, DecTalk is the most intelligible and the Votrax and Echo synthesizers are the least intelligible for all age groups.

One way to evaluate these data is to try to determine how well a particular synthesizer can accomplish necessary or important communication tasks. The intelligibility level of a synthesizer is one measure (along with loudness levels) which can be used to estimate its communication functionality. The last table in

Table 1

Speech Intelligibility (Intell.) and Preference (Pref.) Ratings for Different Synthesizers								
Synthesizer	Adults			10-12 Years			6-8 years	
	Intell.	Pref.		Intell.	Pref.		Intell.	Pref.
		F	M		F	M		
Dec Betty	82-83%	2	4	84%	2	1	72%	2 2
Dec Paul	78-87%	3	1	76%	3	2	72%	3 4
Dec Kit	68%	1	4	66%	1	3	60%	1 3
Smooth Talker	64%			51%			45%	
Infovox	63%			----			---	
Real Voice F	54%			59%			49%	
Votrax	32-57%	5	2	39-56%	5	4	35-48%	5 3
Artic R65B	45%			44%			37%	
Echo	26-40%	6	5	34-38%	6	4	31-34%	6 2
M = Male F= Female								

RealVoice. Produced by Adaptive Communication Systems, RealVoice is available both as a small box that can be attached to a PC and as a voice output option for their Speechpac communication aids. RealVoice has moderate to high quality speech and is available in both male and female voices. The data presented, here, however, only reflect research on the female voice.

Smoothtalker 3.0 . The Smoothtalker speech synthesis system generates moderate to high quality synthetic speech and can be used for speaking applications for

range of intelligibility. Systems of comparable prices are often ranked similarly across age groups in terms of their intelligibility. In general, younger children perform a little more poorly than older children or adults. Although not shown in the table, when a sentence context is provided, intelligibility substantially improves. That is, context has a significant impact on speech intelligibility (e.g., familiar topics and participants). Finally, when the respondents are also asked for their preference rating of the various systems, their preference ratings

this article (Table 2) displays a listing of communication tasks and the estimated single word intelligibility levels required to do these tasks. *Please note that these requirements are based on our clinical experiences and not from controlled research investigations.* Assignments of high, moderate and low intelligibility levels were based on intelligibility research by Pisoni and his colleagues (7). We can conclude from looking at this table that high quality speech synthesis is required for effective communication in many important communication situations.

Related Findings

Psychologists have found that the comprehension of synthetic speech at a sentence level is more difficult than that of natural speech - even for the highest quality speech synthesizers (7,8). Problems in comprehension increase for moderate and low quality synthesizers. These appear to be related to the production of individual speech sounds, the overall quality of the speech signal, and to a lesser extent, the lack of or inappropriate speech intonation.

Preliminary results from our

Conclusions

The information presented here should serve as a guide for your consumption of this technology. We hope that these data will provoke you to listen carefully to all the different speech synthesizers available for your particular needs. Many manufactures provide tape recording of their VOCAs. Our opinion is that high quality speech synthesizers like DecTalk and Smoothtalker are critical for achieving effective social communication. Unfortunately, at the present time, high quality speech synthesizers are still expensive, although the price is dropping

Table 2

Intelligibility Required for Various Functional Activities
Activities requiring high quality speech (+80% single word intelligibility)
<ul style="list-style-type: none">• Communications which need to be correctly understood without repetition (e.g. classroom)• Phone calls to unfamiliar listeners (restaurants, stores)• Conversational communication with unfamiliar listeners or in noisy environments• Communication with hearing impaired individuals• Accelerated speech output (>250 wpm) from a computer
Activities requiring moderate quality speech (50%-80% single word intelligibility)
<ul style="list-style-type: none">• Normal speech feedback from a computer• Classroom communications with familiar classmates & teachers
Activities requiring low quality speech (<50% single word intelligibility)
<ul style="list-style-type: none">• Conversational communication with highly familiar listeners (e.g. family, friends)• Simple and redundant responses from a computer• Computer output accompanying text on the screen

own research (2) on the paragraph-level comprehension of DecTalk and Echo produced speech show that (a) adults are better able to summarize paragraphs produced by DecTalk, (b) that misperceived words can negatively affect the listener's understanding of the entire paragraph and that (c) listener's ability to perceive synthetic speech improves with experience but improvement seems to be limited by the quality of the speech synthesizer. Taken as a whole, these results emphasize the practical necessity for high quality, low cost speech synthesis systems in augmentative communication aids.

rapidly. Other important considerations include the flexibility, functionality, and output quality of the speech synthesis system, when combined with a particular augmentative device. User control over many important output characteristics including loudness level, voice quality, speech rate, pronunciation dictionaries etc., will ultimately be affected by the overall design of the communication device. Also the amplification and speaker characteristics or particular devices may affect the quality effect of the synthetic speech.

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In future issues, we will present and discuss results related to the comprehension of synthetic speech at a sentence level.

The Story of Nola

NOLA MILLIN, ROB HAAF & COLLEEN MCGAFFEY



*Rob and Colleen have decided to let me write the entire article for this issue. Since most of you probably don't know who I am or the experiences I have had being "non-understandable", I'm going to share some of them in this article. Hopefully, you'll then have an idea why Rob thought I might have something to contribute to **Teaching and Learning** and approached me to work with him and Colleen.*

First, notice that I used the term "non-understandable" instead of a term like "non-verbal" or "non-vocal". I dislike using those terms to define myself. I am certainly verbal and vocal; it's just that a number of people can't understand my speech (or they think they can't). My close friends and family can make out 90% of what I say. Believe me, they would definitely disapprove of the terms "non-verbal" and "non-vocal" being applied to me. They say I never

shut up! Being "non-understandable" has added some real adventure to my life, especially in my educational pursuits.

My mother said I was stubborn but I prefer the word determined. Whichever adjective you prefer, I'm one of these people who loves hearing the phrase "It can't be done". When I hear that, I go out of my way to prove that person wrong. With a defiant nature like this, I started proving many so-called professionals incorrect. My mother was also a fighter, so she fought many battles on my behalf.

I was diagnosed with cerebral palsy before my first birthday. My parents enrolled me in a sheltered preschool program where I received therapy. I remember speech therapy consisting of blowing bubbles and blowing feathers across a piece of paper, which was interesting since the feather would get wet with my drooling and stick to the paper! The therapist would also make me repeat words or sentences. What a way to help me to communicate in everyday life! Fortunately, my mom understood my speech and gestures well enough to figure out what I wanted.

I entered a sheltered school at age five. I was quickly introduced to an electric typewriter that had a keyguard. I learned to read by using the typical methods of sounding out words and listening to people read to me while I followed the words on the pages. I quickly started typing out pages from my books, which helped both my reading and typing skills. I would communicate by typing out messages using words from different readers.

When I was seven, I got my own electric typewriter at home and had a means of communicating in writing. I was given children's dictionaries (which I loved!) to help me find the words to express myself. I was also given a home-made communication board that had an alphabet and some common phrases. With the combination of my typewriter and my communication board, I was able to communicate with people, and made out fine for awhile.

A year or two later, Blissymbolics became popular. One of my therapists thought Bliss would be a great answer for me. Now, I'm definitely not knocking Bliss because it's a fabulous invention, but folks: I COULD READ! Here they were teaching me symbols when in reality I was reading the words above the symbols. However, the Bliss boards did open new doors for me because it didn't take me long to progress to a 500-symbol board. (Obviously, since I was "cheating" and reading the words instead of learning the symbols!) That was the largest communication board I ever had.

One advantage I found with using a communication board was that I gained more confidence in my speech. I would try to make myself understood, but if I couldn't I knew I could rely on my Bliss board. With time, my speech improved to the point where close family and friends could understand me. A system was developed where someone who couldn't understand a particular word that I was saying would ask me to spell it. If they couldn't understand the letter I was saying, they would start going through the alphabet until

they had the right letter. Eventually, the word would be spelled out. I still use this system today with many of my friends, since there are times when getting out a communication board is impractical. This system can be interesting, though, since I'm not a good speller!

I remained in a sheltered school in a rehabilitation centre until 1980, but by June of that year it was obvious that I was bored. I wanted to learn, but it was difficult because most of my classmates were at different levels than I was, which meant my teachers had limited time to spend with me. In the fall of 1980, it was arranged that I would go to a regular high school to attend one class each morning; then I would return to the sheltered school for the remainder of the day. At about that time, I started attending a Grade 10 Biology class.

A few months before starting to attend the class, my speech therapist offered to help me make up a word board instead of using a Bliss board. It had numerous words, a few phrases, and, of course, an alphabet. I still use a word board and I just need to modify it every so often. By the time I entered the Biology class I was familiar with my word board so that I was just as fast with it as I had been with my Bliss board. My Biology classmates caught on to my way of communicating pretty quickly and I fitted right in with them. I did all of my assignments and exams on my typewriter back at the centre or at home.

I made out so well that in Grade eleven, I was able to attend four classes at the high school, then returned to the centre for the afternoon. I would get photocopies of another student's notes, since I don't have the ability to write. Also, the high school wasn't accessible, so I had guys assigned to me who would carry me and my wheelchair up and down the stairs. I loved it!

Since I managed fine in Grade 11, in Grade 12 I took six courses, then I would just go home in the afternoons. In 1983, I graduated with my Grade 12, then returned and got my Grade 13. All along the way, I had only an electric typewriter and my word board to communicate and do written assignments. Fortunately, I had a very supportive guidance counsellor, understanding teachers, and incredibly helpful classmates who all helped me cope in the high school environment.

I think I have gained a greater confidence in myself because I have had to learn how to communicate with people without becoming dependent upon equipment to help me. I'm excited about my "new" equipment, but at least I know I can manage at school, or wherever, if and when this equipment breaks down.

I succeeded so well in a regular high school that after getting my Grade 13, I enrolled at the University of Windsor. I was fortunate to get a student helper who happened to be the coach of disabled athletes. He was really a big help and support to me during the first few years of University. I began majoring in Communication Studies, but quickly discovered that it wasn't for me. The course required a person to have good hand control in order to operate cameras and other technical equipment. Even with my student helper, it became apparent that I wouldn't be physically able to complete my Communication Studies degree. I switched to a double Honours degree program in Psychology and English.

My student helper made my adjustment from high school to University much easier. He was

used to working with people who had speech impairments and so he was able to understand me. He also helped me gain greater independence on the campus. Every so often he wouldn't show up to help me in a class. It sounds mean, but it made me take the initiative and make friends with people. I became more confident, and was soon able to find other students to be my helpers.

In University, as in high school, I got take-home exams. I did all of my exams and assignments on my typewriter, even my Psychology statistics, which was an experience in itself! Try writing math formulas on a typewriter. It's not my idea of a good time! I was, and still am, a part-time student and so I have had a bit more time to do assignments. I also have the help of the "special needs" counsellor, who asks all of my professors to be understanding when I need more time to get an assignment done. I have found most professors to be very accommodating when I explain whatever I need, and most of them don't have difficulty communicating with me by using my word board. I also ask many questions by typing notes to my professors. One professor used to joke that I was the only student who gave him "love notes"!

In 1987 it became obvious to me that an Honours degree in Psychology wasn't going to get me anywhere, and if I pursued the Honours degree I was going to have to take one of the toughest courses in Psychology: Experimental Psychology. This course required the student to perform experiments which needed good hand control and/or good verbal skills. After much consideration, I decided that a General B.A. in Psychology would be more practical, and so in June 1988 I graduated with one. I returned to University that fall to continue to work on my Honours B.A. in English, but I decided to

make it an Honours B.A. in English and Creative Writing. I will hopefully get that degree in June of 1992. I'm already planning to pursue my Master's degree; I just can't decide if I want it in English Literature or in Creative Writing. I still only take two or three courses every semester, so it will take me a little longer to get my Master's degree.

As I've just stated, I'm *still* in University. You can go ahead and laugh: All of my friends make fun and call me "the professional student". Now another major change has occurred in my life. Up until the late fall of 1990, I had been relying on my word board and typewriter to be my means of communication with people who couldn't understand my speech. I had been working with the staff at the Artificial Language Laboratory at Michigan State University to design a voice output communication aid (VOCA) for me. My VOCA was *finally* ready to be brought home in October of 1990. It works on my electric chair, and is really compact and easy for the listener to understand. Unfortunately, it only worked for a couple of months before it started acting up. The VOCA would talk by itself, and I couldn't turn it on when I went to school since I couldn't reach the on/off switch once I was sitting in my wheelchair. By the time the VOCA was fixed, I was finished school for the year. Obviously, I only used my VOCA at school for about a month, and since I wasn't used to it I relied more on my word board. I'm looking forward to this coming school year when I can really use it.

Besides getting my VOCA, I also got a home computer in the spring. It's late summer as I'm writing this article, and I still can't use my computer because I'm waiting for a keyguard and software to arrive. I already know that a computer will make my life a lot easier, although as I look back I'm glad, in a way, that I

have gotten through this much of my educational life without a lot of "high-tech" equipment.

I hope you haven't become bored reading about some of my experiences. Although it has been an interesting adventure, and difficult at times, I'm glad that I have had the support of many people to keep pursuing my education. One of the important facts I have learned is that it doesn't take sophisticated equipment for a disabled person to get an education: It just takes determination and an outrageous sense of humour. I have to laugh at professionals who have said "You can't do it that way. It has never been done like that before"! Yes, "high-tech" equipment does make life easier, but as you can see I didn't put my

education on hold waiting for it. To the consumer reading this, I would encourage you to pursue your goals despite what people are telling you. Persevere if you feel your goals are achievable or if you at least want to try to reach them. To the clinicians and other professionals reading this, do me and other consumers a favour: Listen to us! You might be surprised at what you hear, or you might discover that our ideas will work!

Thanks to Rob and Colleen for letting me write this entire article. You will definitely be hearing from them in the next article. I won't let them pass the entire responsibility of our section off on me that often. *They* need to work too! (They'll kill me for that one!)

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Understanding Cerebral Palsy "Accents?"

Geb Verburg & Lew Blancher

We have given much thought to the different AAC systems, aided, unaided, gestural, symbolic, orthographic, or pictographic. Each of these systems can be used, singly or in combination, by persons with different needs and abilities. However, little attention has been given to individuals with speech impairments who choose to rely solely on their own speech. Lew Blancher is one such communicator. He does not use an AAC device yet his speech is difficult to understand for all but his closest friends and acquaintances.

Lew has agreed to write Contexts for this issue to share his communication experiences with us. As well as addressing questions that I have posed, Lew gives some hints for communication partners. Lew begins by introducing himself.

Like most people with cerebral palsy I was born with my "accent" some 53 years ago. Back then very little, if anything, was known about my physical attribute - athetosis, except the popular diagnosis (or notion) that I would "never learn". But my father, intuitively — or probably more accurately — obdurately knew the assessment to be wrong. He took matters in hand, made me a cage-like walker, and watched as six months later I ran freely around the yard. He saw to it too that, in spite of a long five-year hassle with my detractors, I got into public school and into regular classes. Because of the status quo and events, I had to learn to communicate with the only thing that was available to me ... my speech.

In an environment predominantly quick and agile, my speech was never clear. Only to me was it precise and comprehensible, simply because I knew the message my garbled words were carrying. As a result, my attempts as a youngster to communicate had a Jekyll and Hyde effect on my self-image and emotions. Each new school year, each new neighbourhood I moved into, I dreaded. It meant I had to endure the jeers, sniggers, and mimicry of the others, young and old, all over again. It would take time. It was necessary, to gain the confidence that came with winning a friend or two, and to be accepted as a peer, before I was comfortable and able to communicate effectively. It didn't take too long, however, before even the ones who weren't my friends were readily understanding me.

The difficulty with strangers and the comparative ease with which I talked with friends had a confusing impact on me. Being young, and literally not knowing who I was (and trying desperately to know), unsuccessful attempts at communicating would anger me. I'd get very upset with that stupid person standing there, mouth open and eyes blank, who, obviously to me, refused to understand! I expected everyone to be attuned to my messages!

Of course such an attitude on my part is impractical and insensitive, even unrealistic. My defenses in self-respect, no matter how belligerent or retiring, and self-preservation dominated my methods of communication. They (the defenses) got in the way of, not only gaining information and the resulting benefits, but also my growth as a person. It is only in my later years that I have learned a more accommodating approach to the problem.

The feelings of the listener

Upon meeting with a person or persons whose speech I cannot understand I get a number of feelings and I usually adopt some conscious strategy of dealing with the situation. The feelings range from embarrassment, via inadequacy to anger, and the strategies may include "ducking", "getting it over with", "putting my best foot forward", all the way to overcompensating by "profuse verbal gushing". Most often I try to take the time to understand the message, in a way that is least stressful for both of us. I find that it helps to externalize our problem by saying something like: "I'm sorry I could not understand that. Would you please repeat that (again)". Depending on how uptight I am, I will mumble or gush (i.e. talk more than necessary to cover up my feelings of awkwardness).

Awkwardness is one of the accompanying feelings. Somehow embarrassment seems to come in too, along with annoyance or anger with myself for not understanding. I also get upset with the person for putting me into a fix like this.

How to deal with listeners.

When I know that I will be mixing with people who might be unfamiliar with the speech of persons with cerebral palsy, I have in my arsenal a little spiel which I try to rattle off before things get going. It goes like this:

"I know that you may not understand me, but please do not feel guilty or think you are upsetting me. If you will stay with me, I will repeat what I say as many times and in as many ways as necessary. The idea is to communicate!"

There are times, however, when I

don't even get a chance to say my little speech. Incredibly, the people I have most problems with, as do many people with disabilities, clear speech or not, are medical professionals.

A Closing Anecdote

Having me deal with medical professionals is like having a dog ask a librarian for a pass card. They look at me and treat me as if I am incapable of talking with authority! Too many times, I've had nurses laugh at me or just plain ignore my existence. A blatant example of this all too prevalent attitude unfolded when I was to have a myelogram done a while ago.

A myelogram is a very dangerous procedure, and because any slip could result in death, a release form has to be signed. A nurse was about to hand me a clipboard with such a form attached when her eyes darkened and her face grew stern. She withdrew the clipboard and turned on her heels. Silly me, I demanded she return. She reluctantly relented and, scowling, watched as I wrote. But when I was settled on the table unable to move, the doctor who was to perform the trick stepped through the door, took one look at me, turned, and asked for someone else to sign the form!

There are historical and sociological phenomena influencing the way we are perceived and treated by

others; but direct snubs such as the one described here happen. It is my conviction that it is because we have abdicated for so long our responsibility for our own welfare. That is, we have relinquished the "looking after" our of needs and wants to those who are quick and empowered. Once surrendered, the resulting state of "being looked after" feeds into our (mine and your) inability to communicate verbally and otherwise. We, the persons with the "accent" are still regarded as helpless, incompetent, or mentally deficient. Too many people are still unable to accept us as full and independent partners in communication exchanges.

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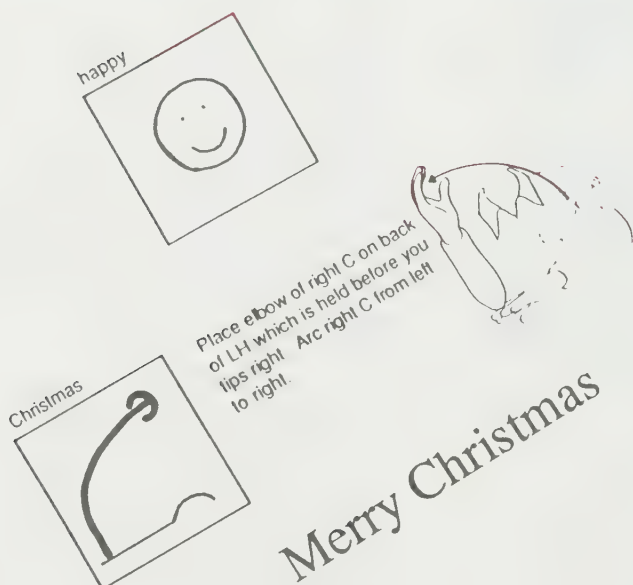
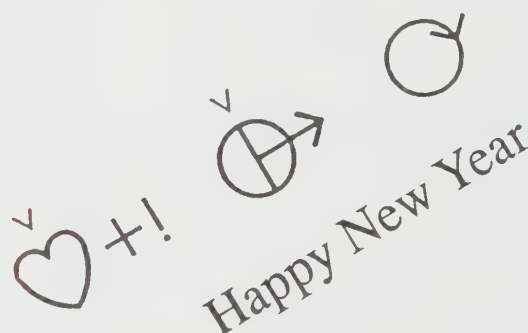
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Some Thoughts on Mainstreaming

PAUL D. LINGEN



Paul Lingen is a teacher of the deaf, employed by the Ernest C. Drury School at Milton, Ontario. His current position is that of a Resource Service Consultant. He is part of a team of professionals including speech/language pathologists, psychologists, and social workers that provides consultative services to boards of education and agencies in the central part of Ontario who have deaf or hard of hearing students in their programs. We are delighted to have Paul as a guest author for our Perspectives section this issue.

It is a very humbling and time consuming experience to sit down and collect my thoughts on such a complex topic as "Mainstreaming." To some extent, I regret agreeing to write this article, because of the time I have spent reflecting on and planning what to say. However, this experience has caused me to clarify both my emotions and the issues I see as important in this process called "mainstreaming".

I shall begin by clarifying what I mean by mainstreaming. To me, mainstreaming implies that the regular educational program is

viewed as having the primary responsibility for educating all pupils, including those with handicapping conditions. I suppose other terms such as regular education initiative, inclusive philosophy, and education in a community context all relate to this basic concept. The use of these terms stirs up many emotions in people, from joy and pride to frustration and anger as well as many other emotions between these extremes. It is my impression that such a wide attitudinal response to mainstreaming exists because of the wide range of perceptions of its success.

Many writers have suggested that regular classroom teachers have generally responded negatively to these mandates and would prefer to leave exceptional children with exceptional teachers. Others, on the other hand, have found that principals show significantly more positive attitudes toward mainstreaming handicapped pupils than do either regular or special education teachers. It is also interesting to note that teachers more often favoured the retention of special classes whereas nonteaching educators (administrators, school psychologists) tended to prefer regular classroom placement for handicapped children. It seems, then, that the attitudinal, and I would propose, subsequent behavioural, responses to mainstreaming handicapped children vary in relation to the proximity to the handicapped child. That is, the closer the educator is to the actual delivery of program to the child, the more negative the attitude toward mainstreaming. It has also been my experience that as the handicapping conditions of the child increase, the greater is the possibility of program ineffectiveness and for gaps in service.

The article is starting to sound

like an academic paper, and it is not intended to, so it is time to take another tack. I would propose that difficulties lie, not in the philosophy of mainstreaming, but in its practices. As a consultant who works with mainstreamed multi-handicapped deaf and hard-of-hearing children, I have seen situations where "multi-disciplinary" teams of professionals have done assessments on children, and made recommendations without ever once communicating with the other professionals. Frequently, they do not even consult with the educators involved with the child to determine if their recommendations are both relevant and able to be implemented in the classroom environment. The difficulty is that each professional tends to function independently, or with limited interaction with the others involved and has a limited ownership of the effort needed to implement recommendations.

I can recall a young hard-of-hearing student whose loss was part of complications resulting from a head injury, and who also was visually impaired and physically disabled. The focus of my consultation was around the planning necessary to facilitate a move from a treatment centre to a community high school. Although considerable time and planning was undertaken by many professionals, and of course many meetings were held to plan this transition, I was shocked to find out that not one professional had spent time orienting or explaining the terms of the transition and the job expectations to the educational assistant who was a critical component in the transition program. Another practice of concern to me is based on the belief that the regular classroom can "be all things" to the handicapped child. I would propose

that just as the disabled child's condition creates handicapping conditions that must be responded to, so also does the regular classroom have limitations that are handicapping to some children. I recall one young profoundly deaf multi-handicapped student whose family wished that he be fully integrated into the "regular" class. As this young man's primary mode of communication was sign language, it was further requested by his parents that the classroom be a "total communication" environment in which sign language was continually used. The school board officials were not prepared to admit to limitations in their program, relying on their policy that "all children can be educated in the regular classroom, with appropriate supports". The parents' and the school board's differing perceptions of what constituted "appropriate support" presented a major obstacle.

Another concern related to the practice of mainstreaming is the variety of responses to different parents, based more on their ability to negotiate or "work" with the educational system, and less on the needs of the learner. What comes to mind here, are the differences in support services provided to pupils whose parents have good communication skills, and who have the time to attend meetings, visit the school, talk with both administrators and teachers compared to children whose parents do not have good communication skills, perhaps because of language difficulties, and who may not have the same amount of time available to develop relationships with the teachers and others involved with their child's education.

It has been my observation that the most effective means of ensuring a successful mainstream placement for a handicapped child is to inform and educate the people in the receiving environment, specifically the teachers and the students. This initiative needs to be coupled with coordinated information from specialized professionals that is relevant to the classroom

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environment. The sense of "community" and support for a handicapped child needs to go beyond the walls of the classroom and the school and needs to be defined in terms of the child him or herself.

Finally, it is my impression that the decision making process for determining placements of children with disabilities requires refinement. By this, I mean that it may be a wise decision to give consideration beyond a superficial level to why a child is being mainstreamed. There seems to be three important components of mainstreaming; namely, temporal integration, instructional integration and social integration. Please note that these forms of integration are perceived to be components of mainstreaming, and that they can be both independent and interactive. Effective mainstream programs go beyond just physical time in the classroom and take account of the changes in priorities created by these different components.

To what extent do decision makers during the placement review process give consideration to WHY the student is being mainstreamed, and

HOW the placement and its support services combine to respond to the identified and implied needs of the learner? To what extent are variables such as level of support (direct, administrative and family), classroom environment, social/personal abilities and physical abilities considered in addition to communication and academic abilities in making decisions related to appropriate placements for students? When are evaluations made, and how are they communicated to parents, that placements within the immediate community do not go far enough in responding to the needs of some children? Do not misunderstand me - it is not that I am opposed to mainstreaming and support segregated classes. In contrast, I am in support of whatever placement is best able to provide the support services and to create an environment in which the learner's needs can be met to the greatest extent possible, and where there are the least number of barriers to the child's personal, physical, social and academic growth and development, whether that placement be in the mainstream, in segregated classes or in a combination of both.

Accommodating and Integrating

SHIRLEY MCNAUGHTON

Shirley McNaughton has worked within the AAC field as a teacher, consultant, lecturer and administrator. She retired from the position of Executive Director of the Easter Seal Communication Institute and Blissymbolics Communication International in 1989. She is currently involved in a doctoral program in the Department of Instruction and Special Education at the Ontario Institute for Studies in Education. Her focus of research and advanced study is on the processing of graphic symbols.

Whenever I am told that a student is using a particular symbol system because it is the one most readily accepted by his or her family or teacher, I want to ask, "Just who does this symbol system belong to?"

The reasons usually given are: "It required the least study on the part of the parent or teacher"; "It attracted least attention"; "It could be learned by the child without a lot of instruction time"; or "It could be immediately understood by the child's peers who are unable to read". The reasons can be summarized into one: "If this child is to be integrated successfully, we have to accommodate to the limited time of the teacher and to the needs of the other children".

Whenever integration and the needs of others are given as the primary reasons for a child's symbol system being chosen, I feel that somehow our logic has become distorted. Must integration mean that those with special needs should compromise their learning opportunities in order to fit in?

Whose needs are primary?

In symbol selection, the first questions to be asked are: "What are the capabilities and needs of the individual who will use the sym-

bols?" and "What symbol system will allow him or her to develop these capabilities and respond to these needs best?" After we have responded to these questions, we can move on to, "How much can be expected of facilitators?"

If parents and teachers are included in the decision-making process and if they understand the importance of meeting the extensive needs of the student, I believe many will want to be supportive. I know many families and educators who have agreed to put the extra effort into supporting the symbol system that provides the most for their child. They recognize that the objective in integration is the inclusion of individuals *who are different*. If integration requires reducing differences (capabilities) to levels which are least noticeable and which require the least effort by others, then we have negated the very goal we seek - full development and full involvement!

Deliberations need to include consideration of the needs of *others*, but the final choice should meet the needs of the *child*. Once the decision has been made, we do well to give primary attention to the facilitator's needs as ways are planned for introducing, displaying and supporting the symbols!

Capabilities and Needs

We must understand and be guided by the child's unique capabilities and needs. Observing what children can already do gives us clues to their **capabilities**.

- What activities attract and hold their attention?
- What do they find humorous?
- How do they use environmental clues to assist them in communicating?
- What causes them to be alert and motivated?
- When do they participate in activities, even as observers, for long periods?

Their **needs** can be determined by observation as well. As we relate to needs, however, we must remember to observe both the nonspeaking child and his or her peers. Children who use symbols have their own unique needs but they also share many of the needs of their speaking peers.

What we can observe about the nonspeaking child:

- the activities that interest him or her;
- the type of communication that would allow increased involvement.

What we can observe about the child's speaking peers:

- the activities they enjoy that the nonspeaking child is unable to join;
- the things speech allows them to do.

Questions asked

First we must ask, "What symbols would provide access to all of these activities and communicative interactions for the nonspeaking child?"

Next come the more difficult questions: "What role is speech playing in the **learning** of the speaking child?" and "Which symbols can come closest to replicating that role?" Most important of all: "What are the **language** capabilities supported by each type of symbol system?"

Language is it!

It is their expressive *language* which allows speaking children to use words to communicate, and as well, to learn about the power of their words. For there is much more to language than the surface words children produce. The work of Vygotsky and Luria, two Russian scholars whose investigations ranged into psychology, linguistics and neuropsychology, is gaining increased recognition by those who

study child language development. Both these men emphasized the depth of language and the need to understand the psychological processing involved in forming a speech utterance.

Although Vygotsky's writing was done during the period between 1924 and 1934, his insights continue to make a strong impact today. He described the changing interactions between thought and language as the child develops and emphasized the importance of the adult's interaction with the learning child and of the child's way of communicating within this interaction.

Luria, in his book *Language and Cognition*, published in 1981, examines what happens when an individual forms an utterance. He describes a process which proceeds through several levels: (1) the motive to speak; (2) an utterance plan (a subjective sense of what the individual wants to say); (3) an initial structure of thought which contains both what is already known and what will be new about this subject; (4) inner speech which is organized sequentially but is reduced in form because it primarily represents what will be new in the utterance; (5) the formation of an expanded speech utterance, which is part of ongoing social interaction and also part of a chain of mutually connected sentences.

Speech is the tip of the iceberg! And when we provide a symbol system for a child, we have to remember that it is not only serving the role of speech by being an alternative or an augmentative communication system for the child. It is also interacting within the process described by Luria (presented in a greatly simplified form above). The symbol system is involved in the formation of thought and language. Just as speaking children experience how words can portray meaning and be ordered and adapted to produce new meanings, so AAC users need to

learn how symbols can portray meaning and be ordered and adapted to produce new meanings. As children show us their abilities at Luria's level five through the ways in which they form expanded speech utterances, we must remember that development should be occurring throughout levels one to four as well. The symbol system needs to be up to the job! As concepts are developed and as the capabilities and structure of their language becomes ever more evident to children, they become more proficient in using words. And this knowledge is applied as children approach reading and learn how meanings can be transmitted in a written as well as a spoken form.

We must ask a great deal of symbols: They must provide language capabilities as well as word capabilities and we must ensure that nonspeaking children's language needs are considered when symbol decisions are being made. Within integrated settings, they need language competencies all the more in order to participate in the many learning activities of their class.

If providing rich language learning opportunities is the single most important consideration in selecting a symbol system for developing children, the vital consideration for those who would become facilitators is knowledge of what symbols should do for the nonspeaking student. Remember what talking does for the speaking child. Remember all that it accomplishes: telling news and tales and riddles and dreams; playing with words and having fun; imagining; problem solving; thinking out loud; giving one's opinions and asking one's questions. And while surface talk is taking place, remember all that is happening "under-the-surface". Remember all the language and conceptual skills that children use as they talk and read and write. Remember the big job that we should ask of their symbols!

The rights of integration

When it comes to nonspeaking students and their symbols, there are three rights which should always accompany their right to be integrated. First, there is their right to an expressive language that is different, but which offers its users as many as possible of the language capabilities of speech. Second, there is the right, along with their parents and teachers to be involved in the process of choosing the system that best meets the child's needs. Third, for caring teachers, as well as nonspeaking children and their families, there is the right to receive information - regarding all the options available and the primary factors to consider in arriving at a choice. Symbol system decisions can then be made in the best interests of the child.

With a concern for language as well as communication, and with access to information by those who will become facilitators, integration should not necessitate compromises regarding the child's symbol system. Hopefully more voluntary accommodating will be done by facilitators and less enforced accommodating will be required of symbol users!

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In March

Next issue, I'll begin examining some of the symbol sets and systems with regard to the language capabilities they offer. The March, 1992, theme of sexuality will provide lots of vocabulary issues. For grammar considerations we'll take a broader look.

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